

Preventing Readmissions to the ICU & What is the future of Outreach in the UK

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Background

- Historically, Patients admitted to Intensive Care Units throughout the United Kingdom showed clear signs of prolonged deterioration / poor intervention on the wards
- McQuillan P. et al: Confidential inquiry into quality of care before admission to intensive care (*BMJ* 1998; 316:1853-1858)
 - 41% of ICU admissions potentially avoidable (-1992-1993 data)

Further Evidence

- 36% patients receive suboptimal care pre-ICU

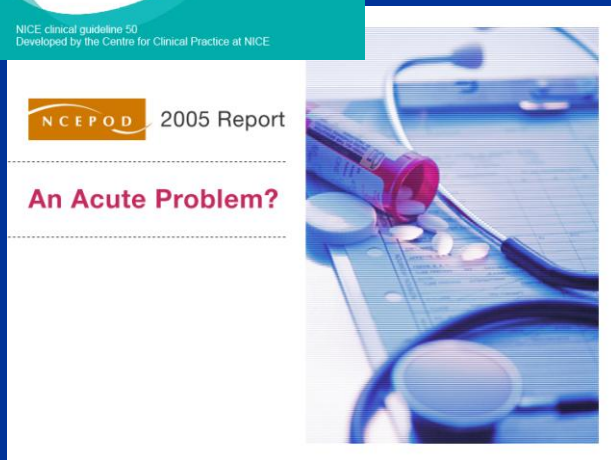
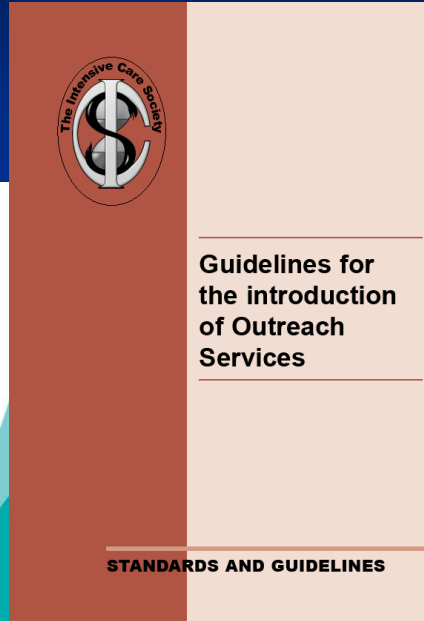
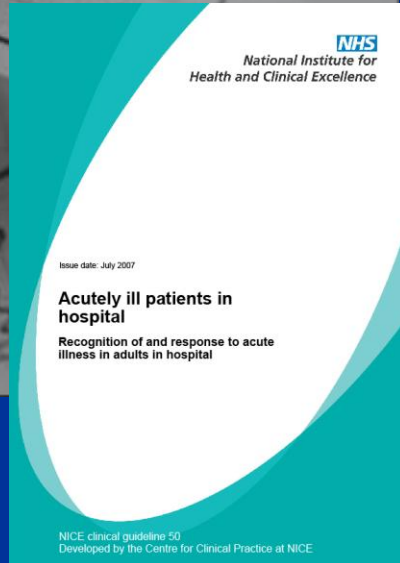
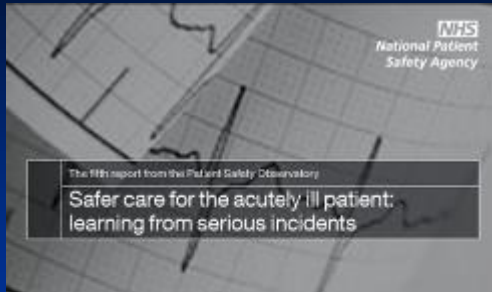
1996 data: McGloin *et al* JR Coll Physicians Lond (33)3

- 10.8% patients have adverse events: half are preventable

1999-2000 data: Vincent *et al* BMJ 322 (7285)

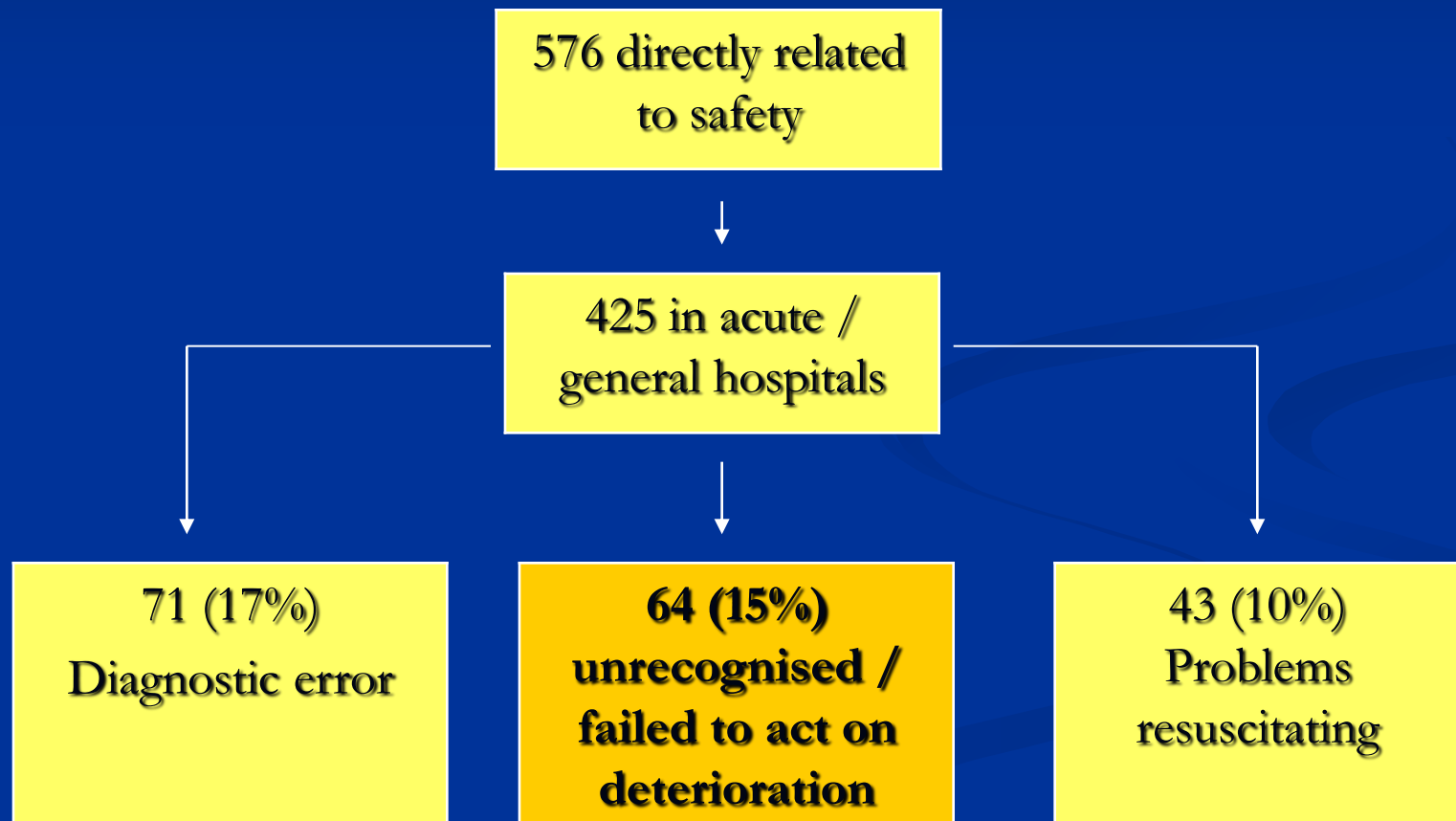
- Investigated by independent government agencies through retrospective audits and examination of the systems in place at that time

Government Agencies



- NICE – National Institute for Clinical Excellence
- NPSA – National Patient Safety Agency
- NCEPOD – National Confidential Enquiry into Patient Outcome and Death
- Intensive Care Society

In 2005 **1,804** patient deaths were reported
to the NPSA



Report Findings..

- Failure to measure basic observation of vital signs
- Lack of recognition of the importance of deteriorating vital signs
- Abnormal vital signs were a clear indicator of increased mortality risk
- Delay in responding to deterioration (66% had physiological instability for more than 12 hours)
- 65% of these events occurred in the evening or at night

Report Findings..

- Poor Documentation of medical records, including requests regarding type and frequency of physiological observations
- Instructions of parameters set to trigger patient review also poorly documented
- Respiratory rate infrequently recorded
- 27% of hospitals did not use a track and trigger system

Recommendations..

- A clear monitoring plan should be documented in the medical notes on admission
- Minimum 12hrly observations for all inpatients
- Observations should include
 - Heart Rate
 - Respiratory Rate
 - Temperature
 - Systolic Blood Pressure
 - Oxygen Saturation
 - Level of Consciousness
- The frequency of monitoring should increase if abnormal physiology is detected
- Avoid ICU discharges between 2200hrs & 0700hrs

■ All hospitals should have a **Track and Trigger System** in place to cover all inpatients.

(Alert system)



ADVERSE CLINICAL SIGNS IN NEUROLOGICAL AND NEUROSURGICAL PATIENTS

Do not hesitate to 'fast bleep' the Anaesthetic SpR (**Bleep 8131**) or other junior doctor via Switchboard in emergencies and contact Outreach Team (Mon-Fri 0900-1700 **Bleep 8277** or 'out of hours' via SITU / MITU)



ADVERSE SIGN	ASSESSMENT	ACTION PLAN
<ul style="list-style-type: none"> Decreasing GCS by two points or more Seizure activity <ul style="list-style-type: none"> In non-epileptic and all neurosurgical patients In known epileptics 	<p>Airway</p> <p>Breathing</p> <p>Circulation</p> <p>Disability</p> <p>Exposure</p> <p>Blood Glucose</p> <p>The patient must be assessed immediately by the nurse-in-charge / senior ward nurse who must instigate the Action Plan if appropriate</p> <p>Increase frequency of observations in any patient who has an adverse clinical sign</p> <p>Remember that assessment can be facilitated by the use of continuous monitoring (ECG, NIBP, SpO₂) and monitoring is mandatory prior to transferring the patient to another area</p> <p>Patients with a poor GCS (≤ 8 or falling) must be assessed by an anaesthetist prior to transfer to another area</p>	<p>Nurse-in-charge to inform Neurology or Neurosurgical SHO immediately</p> <p>↓</p> <p>SHO must attend patient within 15 minutes and document their findings and plan of action in the medical notes and discuss the patient with their SpR</p> <p>↓</p> <p>If SHO fails to respond / attend within 15 minutes contact SHO again</p> <p>↓</p> <p>If no response within 5 minutes contact SpR</p> <p>↓</p> <p>If SpR does not respond within 5 minutes, contact Consultant on call</p>
<ul style="list-style-type: none"> * GCS of 8 or less 	<p>- if this is a new finding</p> <p>or</p> <p>- on initial assessment of a patient admitted as an emergency to the ward</p>	<p>↓</p> <p>If SpR does not respond within 5 minutes, contact Consultant on call</p>
<ul style="list-style-type: none"> Oxygen saturation < 90% **Heart rate < 50 or > 110/min **Respiratory rate < 8 or > 25/min ***Systolic BP < 100 or > 180mmHg Urine output < 100ml or > 1000ml in 4 hours Temperature > 38.5°C Vital capacity < 15ml/kg Na⁺ < 125 or > 150mmol/l K⁺ > 6mmol/l Glucose < 3 or > 20mmol/l Poorly controlled pain 'Worried about patient' 	<p>Troubleshooting tips:</p> <ul style="list-style-type: none"> If SpO₂ ↓ <ul style="list-style-type: none"> reposition patient and sit up if allowed oxygen therapy if patient has a tracheostomy follow emergency procedure algorithm consider saline / salbutamol nebuliser If BP / urine output ↓ <ul style="list-style-type: none"> give normal saline or gelofusine 250ml IV +/- repeat consider bladder washout if urine output ↓ If urine output ↑ check specific gravity If sudden ↑ in temperature consider sepsis <ul style="list-style-type: none"> send cultures as appropriate consider IV fluids 	<p>* If GCS 8 or less</p> <p>Nurse-in-charge to follow directions above but Anaesthetic SpR (bleep 8131) must also be informed immediately</p>
<ul style="list-style-type: none"> Autonomic dysreflexia in spinal cord injury 	<p>Autonomic dysreflexia</p> <p>Signs and Symptoms include</p> <ul style="list-style-type: none"> Severe pounding headache Flushed appearance of skin above level of lesion Extensive sweating above level of injury <p>Treatment – must be initiated quickly</p> <ul style="list-style-type: none"> Sit patient upright Correct problem (e.g. blocked catheter, etc) May require urgent medication to reduce BP <ul style="list-style-type: none"> GTN sub-lingual spray / infusion if needed Avoid beta blockers Record BP every 5 minutes until episode resolves (see Protocol) 	<p>The Anaesthetic SpR and Outreach Team are available at any time for advice if required</p>

* * Some patients with brain injury may have had individual heart rate and respiratory rate limits set by the Intensive Care Team before discharge to the ward

***Patients having assessment of their autonomic nervous system may have different limits set for their systolic BP

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<ul style="list-style-type: none"> Autonomic dysreflexia in spinal cord injury <p>Sudden and potentially lethal surge in BP in patients with spinal cord lesion at or above T6</p> <p>Triggered by noxious stimulus</p> <p>These patients often have low BP ∴ 'normal' BP may represent significant rise</p> <p>Intervention definitely indicated if patient symptomatic</p> <p>Also consider intervention if BP 30% above baseline</p> 	<p>Autonomic dysreflexia</p> <p>Signs and Symptoms include</p> <ul style="list-style-type: none"> Severe pounding headache Flushed appearance of skin above level of lesion Extensive sweating above level of injury <p>Treatment – must be initiated quickly</p> <ul style="list-style-type: none"> Sit patient upright Correct problem (e.g. blocked catheter, etc) May require urgent medication to reduce BP <ul style="list-style-type: none"> GTN sub-lingual spray / infusion if needed Avoid beta blockers Record BP every 5 minutes until episode resolves (see Protocol) 	

NHS Early Warning Score (NEWS)

PHYSIOLOGICAL PARAMETERS	3	2	1	0	1	2	3
Pulse	≤40		41 - 50	51 - 90	91 - 110	111 - 130	≥131
Temperature	≤35.0		35.1 - 36.0	36.1 - 38.0	38.1 - 39.0	≥39.1	
Systolic BP	≤90	91 - 100	101 - 110	111 - 219			≥220
Respiration Rate	≤8		9 - 11	12 - 20		21 - 24	≥25
Consciousness Level				A			V, P, or U
Oxygen Saturations	≤91	92 - 93	94 - 95	≥96			
Any Supplemental Oxygen		Yes		No			

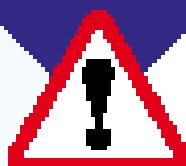
Clinical Response to NEWS Triggers

NEWS SCORE	FREQUENCY OF MONITORING	CLINICAL RESPONSE
0	Minimum 12 hourly	<ul style="list-style-type: none"> Continue routine NEWS monitoring with every set of observations
Aggregate 1-3	Minimum 4 hourly	<ul style="list-style-type: none"> Inform trained nurse who must assess the patient; Trained nurse to decide if increased frequency of monitoring and / or escalation of clinical care is required;
Aggregate 4 or more or 3 in one parameter	Increased frequency to a minimum of 1 hourly	<ul style="list-style-type: none"> Trained nurse to immediately inform the medical team caring for the patient; Urgent assessment by medical / surgical / critical care outreach team with core competencies to assess acutely ill patients; Clinical care in an environment with monitoring facilities;
Aggregate 6 or more	Continuous monitoring of vital signs	<ul style="list-style-type: none"> Trained nurse to urgently inform the medical team caring for the patient – this should be at least at Specialist Registrar level; Emergency assessment by a clinical team with core competencies in the assessment of critically ill patients. This team will have critical care competencies and a practitioner/s with advanced airway skills and resuscitation skills; Consider transfer of Clinical care to a level 2 or 3 care facility, i.e. higher dependency or ITU;

Communication Tool



**Institute for Innovation
and Improvement**



SBAR Reporting

Attention all team members

For good communication about patients between all health professionals, use the SBAR tool before calling:

- ▶ Assess the patient
- ▶ Know the admitting diagnosis
- ▶ Read the most recent progress notes and assessment from the prior shifts
- ▶ Have appropriate documents available e.g. Nursing and Medical Records, MEWS (modified early warning score) charts, Allergies, IV fluids resuscitation status

Situation

- ▶ State your name and unit
- ▶ I am calling about patient's name
- ▶ The reason I am calling is

Background

- ▶ State the admission diagnosis and date of admission
- ▶ Relevant medical history
- ▶ A brief summary of treatment to date

Assessment

- ▶ State your assessment of patient e.g. vital signs, MEWS score, mental state, mobility, medicines

Recommendation

- ▶ I would like (state what you would like to see done)
- ▶ Determine timescale
- ▶ Is there anything else I should do?
- ▶ Record name and contact number of contact

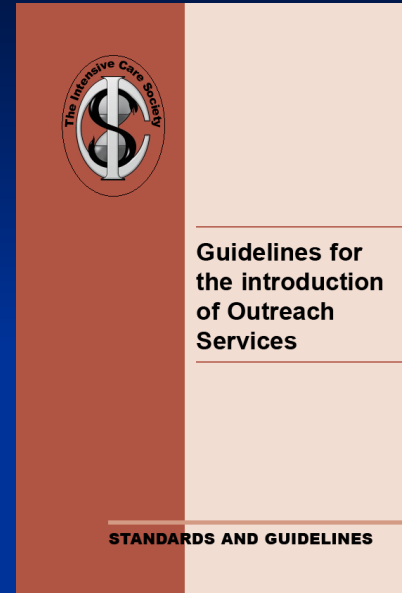
Don't forget to document the call

Recommendations

These should be
Linked to a team
of staff
(outreach team)
Qualified
in Assessing and
Treating acutely
ill patients



All critical care units
establish an
Outreach Service
Adopt a hospital-
wide approach to
critical care (2000)



Identification of
critically ill or
deteriorating
patient is the key
to preventing
admission or
readmission to
the critical care
facility (2002)



Outreach ... an
organisational
approach to
ensure equity of
care for all critically
Ill patients,
irrespective of their
location (2003)

Benefits of Outreach

- Provides a daily review of high risk patients - allowing early detection and intervention of the deteriorating patient
- Sharing critical care skills and knowledge
- Fewer unplanned ICU admissions
- Early / timely admission to ICU
- Reduced mortality and morbidity
- Prevention of cardiac arrest

UCLH Cardiac Arrest Data

Year	2001	2008
Outreach Service	Daytime only	24 hour
Number of ICU admissions / year	1,205	similar
Number that died in ICU	239	similar
Number who died after discharge to the ward	114	57 (50% reduction)
Number of genuine arrests / 1000 patients	6.4	2.1 (60% reduction)

Factors to consider with these results

Change in Inpatient population

- More procedures performed in day surgery, or, as outpatients
- Older inpatient population
- Rate of obesity is increasing
- Life expectancy has increased in cancer patients
- Higher number of co-morbidities
- Higher level of dependency on wards

Recommendation

Audit and Review

- How many ICU admissions ?
- Which wards admit most patients ?
- What are the primary reasons for admission ?
- How many arrests ?
- What resources are available ?
- Plan – what changes need to be made and how will they be implemented ?

What is the Future of Outreach in the UK?

- Reviewing and updating the current systems in place
- Critical Care Outreach Competencies
- National Early Warning Score (NEWS) Track & Trigger
- Combining resources / funding of Resuscitation services with outreach services
- Electronic patient monitoring system

Summary

- Evidence that patients admitted to ICUs had clear signs of deterioration for a significant period prior to admission
- Failure to rescue
 - Lack of basic monitoring
 - Delayed recognition and therefore delayed intervention / medical management
- Early intervention on the ward can
 - avert the need for ICU admission
 - ensure a timely transfer to ICU
 - Reduce morbidity and mortality
- The need to re-audit what is happening? Are the systems in place working?